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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/910,542	07/20/2001	James J. Alwan	2269-7134.1US(95-0654.01/	3046
24247	7590	11/24/2006	EXAMINER GUHARAY, KARABI	
TRASK BRITT P.O. BOX 2550 SALT LAKE CITY, UT 84110			ART UNIT 2879	
PAPER NUMBER				

DATE MAILED: 11/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/910,542	ALWAN ET AL.	
	Examiner	Art Unit	
	Karabi Guharay	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on Amendment, filed on 14 September 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 11-14,16-18,31-34 and 36-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-14,16-18,31-34 and 36-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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***Response to Amendment***

Amendment, filed on 14 September 2006 has been considered and entered.

Claims 11 & 31 are amended. Claims 15 & 35 are canceled, currently claims 11-14, 16-18, 31-34 & 36-38 are pending.

***Specification***

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Claims 11 & 31 recites "diamond like carbon" which is not specifically mentioned in the specification. Though polycrystalline carbon is known as diamond like carbon, it is advised that in the claims 11 & 31 applicant use "polycrystalline carbon" instead of "diamond like carbon" in order to provide antecedent basis for the claimed subject matter.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 11-14, 16-18, 31-34, 36-38 are rejected under 35 U.S.C. 103(a) as being obvious over Westphal et al. (US 5,656,886).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Regarding claims 11-12, & 17, Westphal et al. disclose an improved cathode substrate (see Fig 3 & Fig 4) for a field emission display comprising a substrate 18, made of soda-lime glass (lines 51-53 of column 3), a cap layer (20, 22) disposed on the substrate (18), the cap layer comprising a cap material layer (20) comprising silicon dioxide (line 10 of column 3), and an anti-reflecting coating (layer 22, made of amorphous silicon (lines 54 of column 3) which is an anti-reflective material) overlying the cap material layer (20), a conductive layer (28) overlying the cap layer (Fig 3), an array of emitters (32) overlies the part of conductor 28 formed on the hole 26 .

But Westphal et al. fail to disclose silicon nitride or silicon carbide or polycrystalline carbon as the material for cap layer while disclose silicon dioxide as the material.

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However, silicon dioxide and silicon nitride are art recognized equivalent material widely used as cap material for the soda lime glass substrate for blocking sodium diffusion from the soda lime glass.

Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to use silicon nitride instead of silicon dioxide as the cap material in the device of Westphal et al., since selection of known material for known purpose is within the skill of art.

Regarding claims 31-32, 37, Westphal et al. disclose an improved cathode substrate (see Fig 3 & Fig 4) for a field emission display comprising a substrate 18, made of soda-lime glass (lines 51-53 of column 3), a cap layer (20, 22) comprising a cap material layer (20), made of silicon dioxide (line 10 of column 3) and a light blocking layer 22 (layer 22 is made of formed of polycrystalline silicon or amorphous silicon (lines 54-55 of column 3) which is a light blocking material), a conductive layer (28) overlies the cap layer (see Fig 3) and an array of emitter tips (32) protruding from the conductive layer.

But Westphal et al. fail to disclose silicon nitride or silicon carbide or polycrystalline carbon as the material for cap layer while disclose silicon dioxide as the material.

However, silicon dioxide and silicon nitride are art recognized equivalent material widely used as cap material for the soda lime glass substrate for blocking sodium diffusion from the soda lime glass.

Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to use silicon nitride instead of silicon dioxide as the cap material in the device of Westphal et al., since selection of known material for known purpose is within the skill of art.

Referring to claims 13, 18, 33, 38, it is noted that the subject product-by-process claim limitation is not afforded patentable weight (see MPEP 2113).

Referring to claims 14 & 34, Westphal et al. disclose a cathode substrate including a cap layer 20. However, Westphal et al. are silent as to the thickness of the cap layer 4. The specification of a suitable thickness is within the skill of the art. It would have been obvious to specify a suitable thickness for the cap layer 4, because changes in size are generally considered to be within the skill of the art.

Regarding claims 16 and 36, Westphal et al. disclose that the substrate is made of glass, however, plastic material is widely used for substrate in a display device. Glass and plastic are art recognized equivalent material for the substrate.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use plastic material as the substrate since selection of known material for known purposes is considered to be within the skill of the art.

Claims 11, 13, 17, 18, 31, 33, 37-38 are rejected under 35 U.S.C. 103(a) as being obvious over Taylor et al. (US 5557159).

Regarding claims 11 & 17, Taylor et al. disclose a cathode (emitter plate 60) for a field emission device (Fig 3 & 4), comprising a substrate (66), made of glass, a cap layer (64

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& 68) disposed on the substrate, the cap layer comprising a cap material layer (64) made of silicon dioxide and an anti-reflective coating layer 68 (layer 68 is made of amorphous silicon, which is an anti-reflecting material), a conductive layer (78) overlying the cap layer and an array of emitter tips (70) protruding from the conductive layer (78, lines 22-31 of column 6, and lines 5-40 of column 7).

Regarding claims 31 & 37, Tayler et al. disclose a cathode (emitter plate 60) for a field emission device (Fig 3 & 4), comprising a substrate (66), made of glass, a cap layer (64 & 68) disposed on the substrate, the cap layer comprising a cap material layer (64) made of silicon dioxide and a light blocking layer 68 (layer 68 is made of amorphous silicon, which is light blocking material), a conductive layer (78) overlying the cap layer and an array of emitter tips (70) protruding from the conductive layer (78, lines 22-31 of column 6, and lines 5-40 of column 7).

But Taylor et al. fail to disclose silicon nitride or silicon carbide or polycrystalline carbon as the material for cap layer while disclose silicon dioxide as the material.

However, silicon dioxide and silicon nitride are art recognized equivalent material widely used as cap material for the glass substrate for blocking sodium diffusion from the glass.

Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to use silicon nitride instead of silicon dioxide as the cap material in the device of Taylor et al., since selection of known material for known purpose is within the skill of art.

Referring to claims 13, 18, 33, 38, it is noted that the subject product-by-process claim limitation is not afforded patentable weight (see MPEP 2113).

***Other Prior Art Cited***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure :

Yamazaki et al. (US 6586346) clearly teaches that silicon dioxide and silicon nitride are the suitable material for capping or blocking migration of sodium from the soda lime glass.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.



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***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is (571) 272-2452. The examiner can normally be reached on Monday-Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*K. Guharay*  
Karabi Guharay  
Primary Examiner  
Art Unit 2879

11/15/06